FCC COMPLIANCE REPORT

for

Dongguan Hongzhao Innovation Electronic Co., Ltd.

Wireless Video Door Phone

Model Number : HZ-A1-OUTDOOR

Prepared for : Dongguan Hongzhao Innovation Electronic Co., Ltd.
Address : No. 11-13, Donghuan Road, Huangjiang Town, Dongguan City, Guangdong Province, China

Prepared By : NS Technology Co., Ltd.
Address : Chenwu Industrial Zone, Houjie Town, Dongguan City, Guangdong, China

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Report Number : NSE-F09073569
Date of Test : Jul. 7~20, 2009
Date of Report : Jul. 27, 2009

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Test Report Declaration Page

NS Technology Co., Ltd.

Applicant: **Address:**	Dongguan Hongzhao Innovation Electronic Co., Ltd. No. 11-13, Donghuan Road, Huangjiang Town, Dongguan City, Guangdong Province, China		
Manufacturer: **Address:**	Dongguan Hongzhao Innovation Electronic Co., Ltd. No. 11-13, Donghuan Road, Huangjiang Town, Dongguan City, Guangdong Province, China		
E.U.T:	Wireless Video Door Phone		
Model Number:	HZ-A1-OUTDOOR		
Trade Name:	------	**Operating Frequency:**	2404.125-2478.375MHz
Date of Receipt:	Jun. 17, 2009	**Date of Test:**	Jul. 7, 2009~Aug.5,2009
Test Specification:	FCC PART 15: 2008 Section 15.249 ANSI C63.4:2003		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied. **Issue Date: Aug. 6, 2009**		

Tested by:	Reviewed by:	Approved by:
Jade	Iceman Hu	Steven Lee
Jade / Engineer	Iceman Hu / Supervisor	Steven Lee / Manager

Other Aspects:

None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of NS Technology Co., Ltd.

1. GENERAL PRODUCT INFORMATION

1.1. Product Function

Details please refer to Technical Construction Form and User Manual.

1.2. Description of Device (EUT)

E.U.T.	:	Wireless Video Door Phone
Model No.	:	HZ-A1-OUTDOOR
Operating Frequency	:	2404.125-2478.375MHz
Number of Channels	:	63 Channels
Modulation type	:	GFSK
Antenna Type	:	Outside
Output power	:	-18dBm(Maximum measured)
Antenna Assembly Gain	:	2dBi (maximum)
System Input Voltage	:	Nominal Voltage: DC 5V from adapter input AC 120V/60Hz
Temperature Range(Operating)	:	0 ~+ 35℃

1.3. Independent Operation Modes

The basic operation modes are:

1.3.1. TX Mode CH0: 2404.125MHz

1.3.2. TX Mode CH33: 2432.25MHz

1.3.3. TX Mode CH63: 2478.375MHz

2. TEST SITES

2.1. Test Facilities

EMC Lab	:	Certificated by TUV Rheinland, Germany. Date of registration: July 28, 2003 Certificated by FCC, USA Registration No.: 502831 Date of registration: February 09, 2009 Certificated by VCCI, Japan Registration No.: R-2527 & C-2770 Date of registration: March 23, 2007 Certificated by CNAL, CHINA Registration No.: L1744 Date of registration: November 25, 2004 Certificated by Intertek ETL SEMKO Registration No.: TMP-013 Date of registration: June 11, 2005 Certificated by TUV/PS, Hong Kong Date of registration: December 1, 2005 Certificated by Industry Canada Registration No.: 5936A Date of registration: March 4, 2009 Certificated by ATCB, America Date of registration: August 03, 2006
Name of Firm	:	NS Technology Co., Ltd.
Site Location	:	Chenwu Industrial Zone, Houjie Town, Dongguan City, Guangdong, China

2.2. List of Test and Measurement Instruments

2.2.1.For conducted emission at the mains terminals test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	100340	May 31,09	May 31,10
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	May 31,09	May 31,10
Artificial Mains Network (AUX)	Kyoritsu	KNW-407	8-1579-1	Jan.19,09	Jan.19,11
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100168	May 2,09	May 2,10
RF Cable	FUJIKURA	3D-2W	843 Cable 1#	May 2,09	May 2,10

2.2.2. For radiation emission test(30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESVS10	841431/004	Jan.19, 09	Jan.19,10
Spectrum Analyzer	Agilent	E7405A	MY45118807	May 31,09	May 31,10
Amplifier	Agilent	8447D	2944A11174	Jan.19,09	Jan.19,10
Bilog Antenna	Teseq	CBL 6111D	25758	Oct. 15,08	Oct. 15,09
Coaxial Switch	Anritsu	MP59B	6200530579	May 2,09	May 2,10

2.2.3.For radiated emission test(above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Agilent	E7405A	MY45118807	May 31,09	May 31,10
Horn Antenna	EMCO	3117	00062558	Jan. 19,09	Jan. 19,11
Signal Amplifier	BURGEON	PEC-38-30 M18G -12-SFF	NSEMC001	May 31,09	May 31,11
RF Cable	DRAKA	M06/25-RG 102	966Cable 3#24G	May 2,09	May 2,10

2.2.4.For 20dB bandwidth test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	ESPI	100302	May 31,09	May 31,10

2.2.5.For Band edge compliance test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESCS30	100199	May 31,09	May 31,10
Spectrum Analyzer	HP	8593E	3448U00806	May 31,09	May 31,10
Signal Amplifier	Agilent	8447D	2944A10488	May 2,09	May 2,10
Horn Antenna	EMCO	3117	00062558	Jan. 13,09	Jan. 13,11

3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its highest possible radiated level. The test modes were adapted accordingly in reference to the Operating Instructions.

3.2. Test Operation Mode and Test Software

Refer to clause 1.4

3.3. Special Accessories and Auxiliary Equipment

None.

3.4. Countermeasures to Achieve EMC Compliance

None.

4. TEST SUMMARY

Test items and result lists

No.	Item	Standard	Results
1	Conduction Emission Test	FCC Part15C: 15.209 ANSI C63.4-2003	PASS
2	Radiated Emission Test	FCC Part15C: 15.249 ANSI C63.4-2003	PASS
3	Band Edge Compliance Test	FCC Part15: 15.249	PASS
4	20dB Bandwidth Test	FCC Part 15: 15.215	PASS

4.1. Conducted Emission

4.1.1. Test limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(⌠V)	Average Level dB(⌠V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

4.1.2. Test procedure

The EUT is connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Power on the PC and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission.In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Test.

4.1.3. Test result

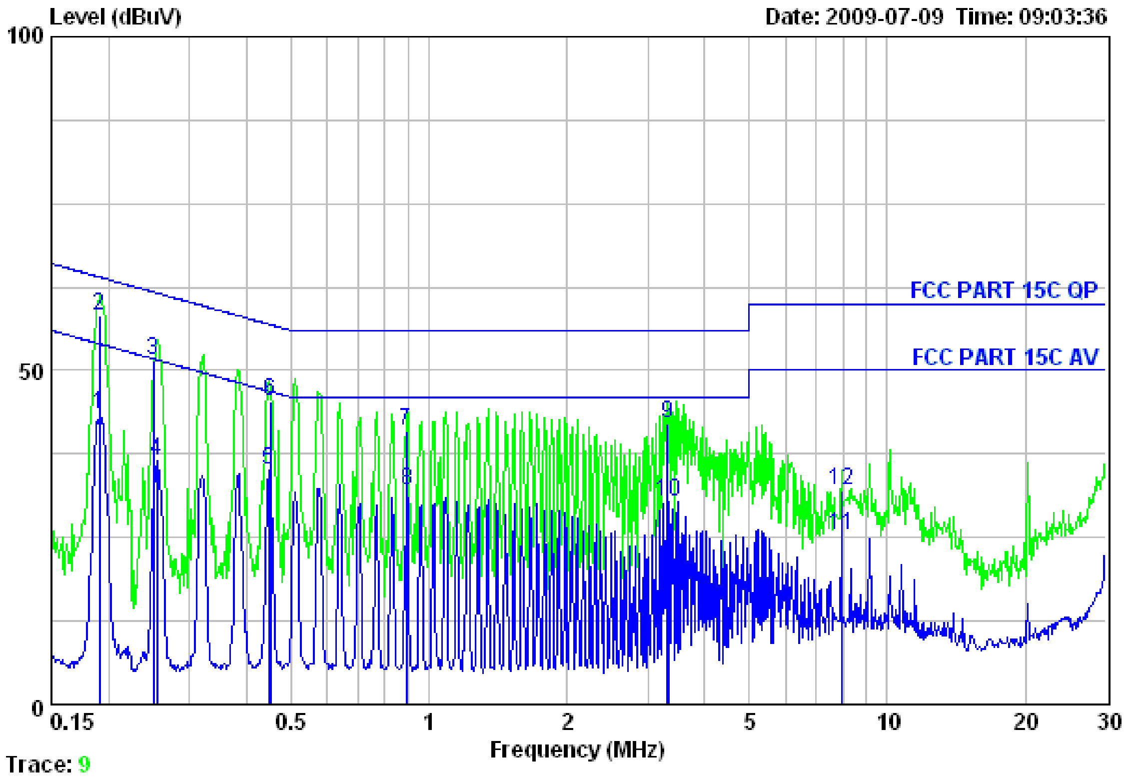
PASS.

The test plots as following:

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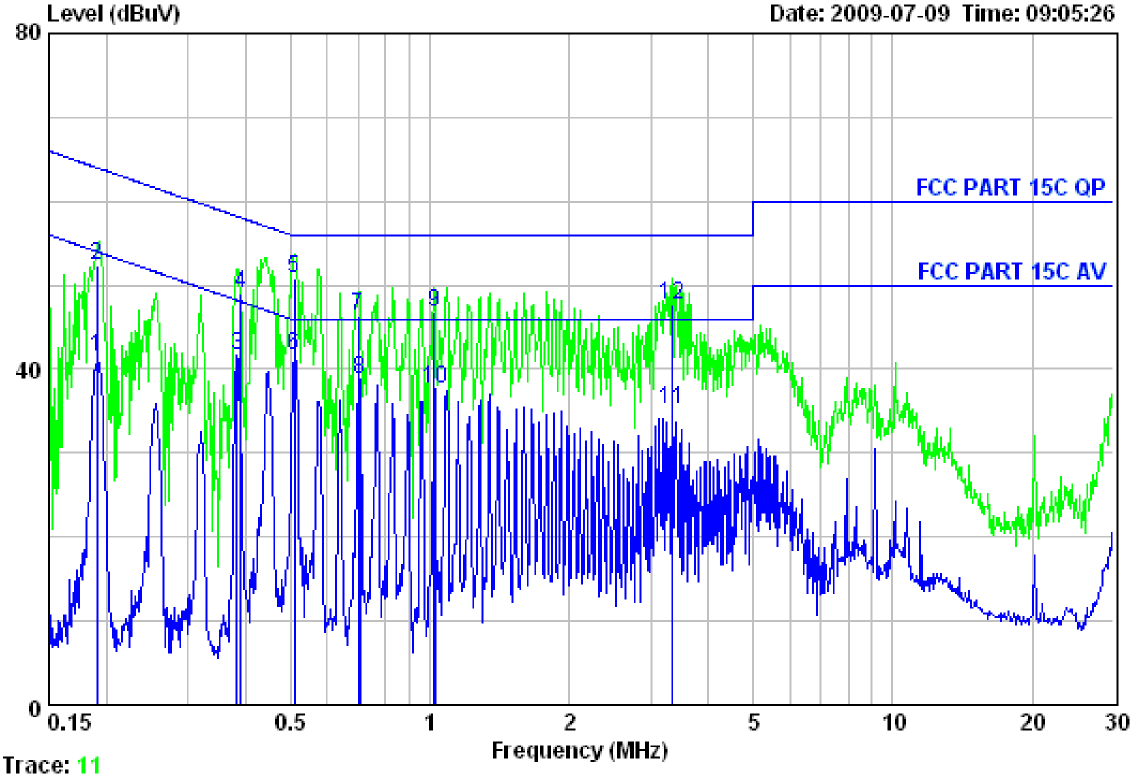
Test Site : 843 Shielded Room
Limit : FCC PART 15C QP LINE Phase :NEUTRAL
EUT : Wireless Video Door Phone
Power : DC 12V from adapter input AC 120V/60Hz
M/N : HZ-A1-OUTDOOR
Test Engineer: Jade
Comment : Temp:25.3'C Humi:58%
Test Mode : TX Mode

	Freq. (MHz)	Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.19	43.47	54.02	10.55	Average
2	0.19	58.30	64.02	5.72	QP
3	0.25	51.47	61.76	10.29	QP
4	0.25	36.56	51.60	15.04	Average
5	0.45	35.18	46.93	11.75	Average
6	0.45	45.50	56.88	11.38	QP
7	0.89	40.98	56.00	15.02	QP
8	0.89	32.11	46.00	13.89	Average
9	3.31	42.20	56.00	13.80	QP
10	3.33	30.46	46.00	15.54	Average
11	7.94	25.45	50.00	24.55	Average
12	7.94	32.05	60.00	27.95	QP

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Trace: 11

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Test Site     : 843 Shielded Room
Limit         : FCC PART 15C QP          LINE Phase :LINE
EUT           : Wireless Video Door Phone
Power         : DC 12V from adapter input AC 120V/60Hz
M/N           : HZ-A1-OUTDOOR
Test Engineer: Jade
Comment       : Temp:25.3'C   Humi:58%
Test Mode     : TX Mode
```

	Freq. (MHz)	Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.19	41.34	54.02	12.68	Average
2	0.19	52.28	64.02	11.74	QP
3	0.38	41.56	48.21	6.65	Average
4	0.39	48.94	58.06	9.12	QP
5	0.51	50.74	56.00	5.26	QP
6	0.51	41.71	46.00	4.29	Average
7	0.70	46.35	56.00	9.65	QP
8	0.70	38.75	46.00	7.25	Average
9	1.02	46.70	56.00	9.30	QP
10	1.03	37.57	46.00	8.43	Average
11	3.33	35.10	46.00	10.90	Average
12	3.33	47.77	56.00	8.23	QP

4.2. Radiated Emission

4.2.1.Test limits

1) FCC part 15C section 15.209
2) FCC part 15C section 15.249(a)

4.2.2. Test procedure

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency band of 30MHz to 1GHz,The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna (calibrated by dipole antenna) was used as a receiving antenna. At the frequency band of 1GHz to 25GHz,The measuring antenna moved from 1 to 4 m for horizontal and vertical polarization. The horn antenna was used as a receiving antenna.

The resolution bandwidth and video bandwidth of the test receiver was 120 KHz and 300KHz for Quasi-peak detection at frequency below 1GHz.

The resolution bandwidth and video bandwidth of the test receiver was1MHz and 1MHz for Peak detection at frequency above 1GHz.

For Average measurement at frequency above 1GHz.The resolution bandwidth of the test receiver was 1MHz ; due to the shortest pulse width T is 116us, according the video bandwidth should not smaller than 1/T,so the video bandwidth is 10Hz.

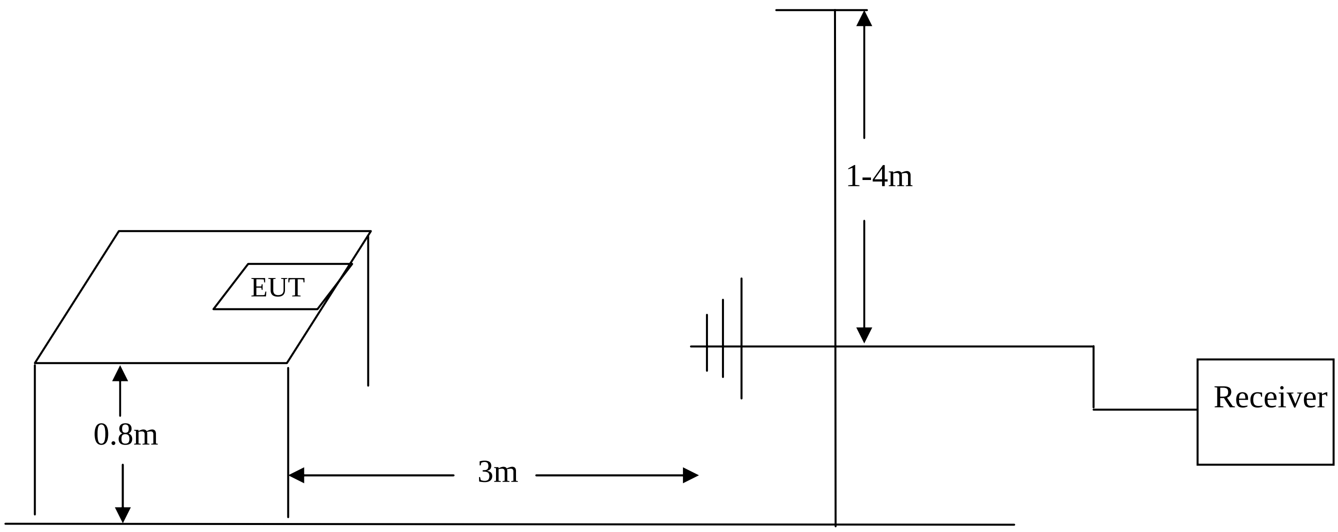
In 18GHz to 25GHz, The EUT was checked by Horn ANT . But the test result is background.

The EUT position(X. Y. Z) were checked and worse case was happened in Y position. So Y position was chose for find measurement.

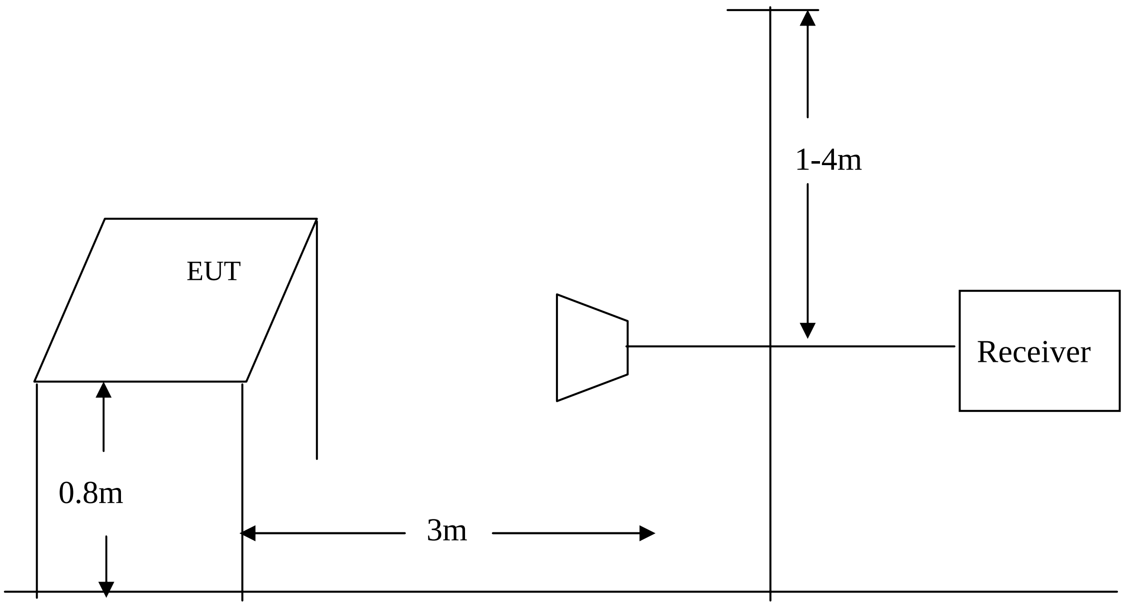
The EUT was tested in Chamber Site.

4.2.3. Test Setup Diagram

4.2.3.1. Frequency range: 30MHz-1000MHz



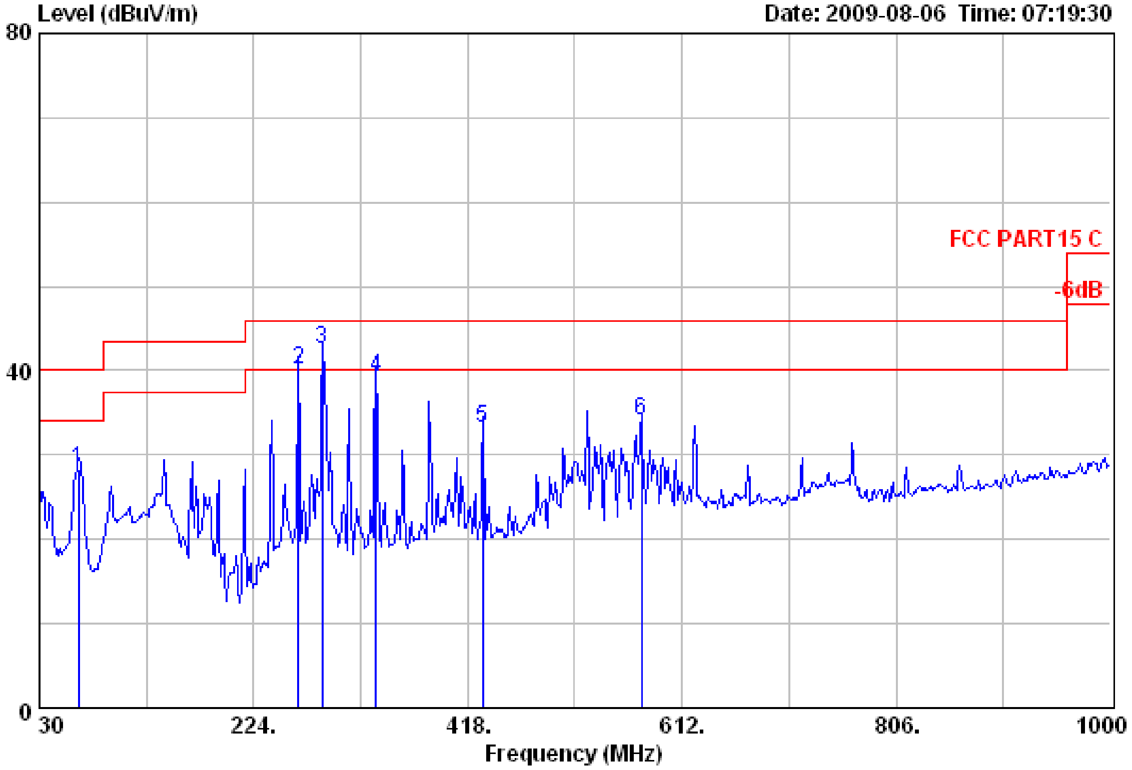
4.2.3.2. Frequency range: 1GHz -18GHz



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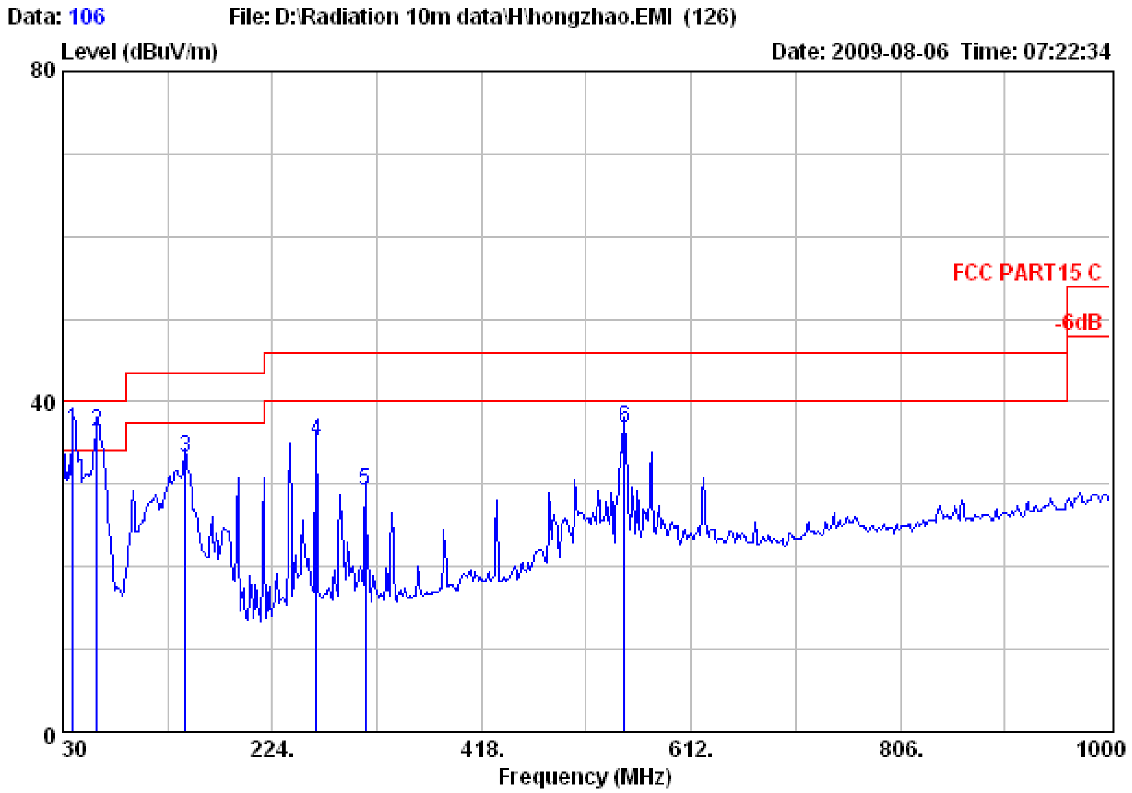



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Test Site        : 10m Chamber
Limit            : FCC PART15 C
Dis. / Ant.      : 3m   25758-3           Ant. Pol.: HORIZONTAL
EUT              : Wireless Video Door Phone
M/N              : HZ-A1-OUTDOOR
Power            : DC 12V From adapter input  AC 120V/60Hz
Test Engineer    : Jade
Comment          : Temp.:25.2'C    Humi.:56%
Test Mode        : TX Mode
```

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	65.89	28.26	40.00	11.74	21.69	5.76	0.81	QP
2	264.74	40.18	46.00	5.82	25.07	13.35	1.76	QP
3	286.08	42.60	46.00	3.40	27.63	13.14	1.83	QP
4	334.58	39.25	46.00	6.75	22.53	14.70	2.02	QP
5	431.58	33.19	46.00	12.81	13.68	17.26	2.25	QP
6	575.14	34.02	46.00	11.98	11.52	19.83	2.67	QP

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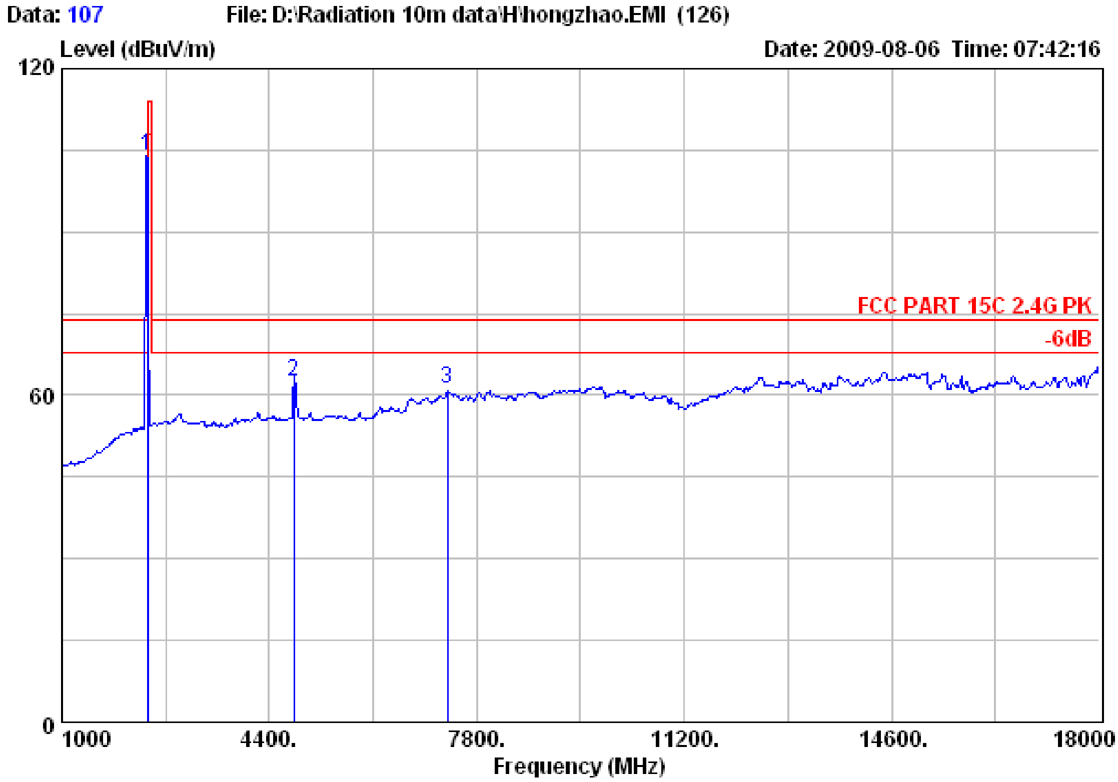


Test Site : 10m Chamber
Limit : FCC PART15 C
Dis. / Ant. : 3m 25758-3 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	38.73	36.58	40.00	3.42	21.25	14.72	0.61	QP
2	61.04	36.31	40.00	3.69	30.26	5.28	0.77	QP
3	143.49	33.24	43.50	10.26	20.09	11.88	1.27	QP
4	264.74	35.28	46.00	10.72	20.17	13.35	1.76	QP
5	310.33	29.17	46.00	16.83	13.38	13.87	1.92	QP
6	550.89	36.86	46.00	9.14	14.74	19.51	2.61	QP

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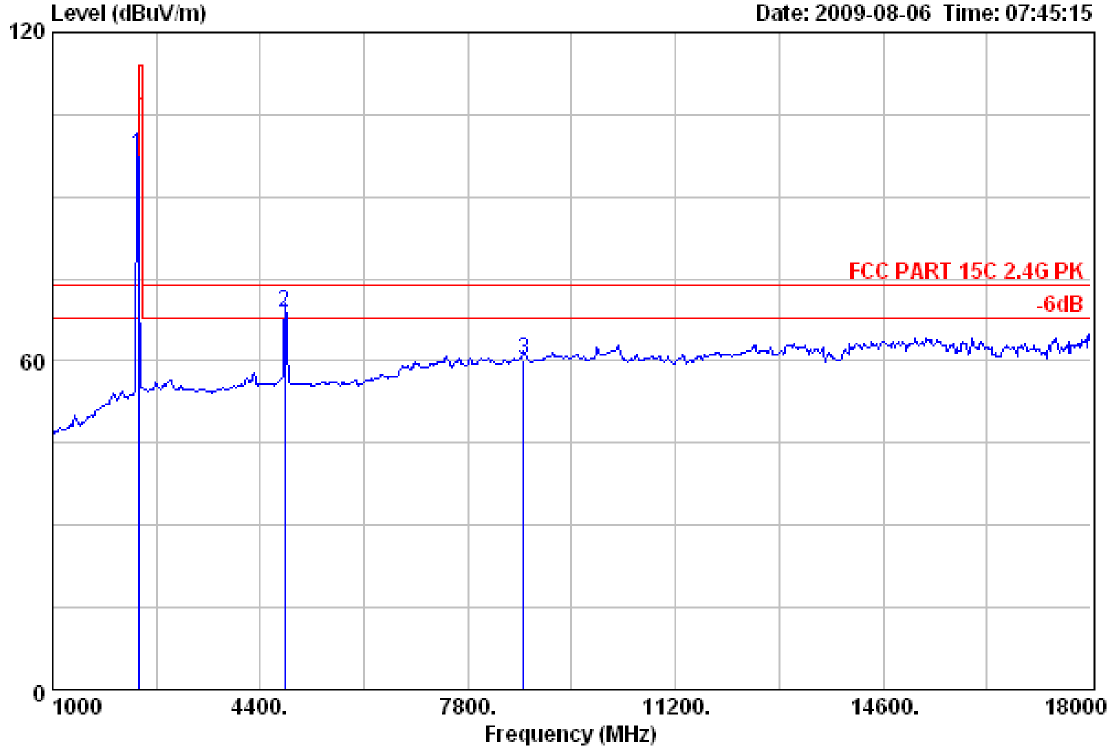
Test Site : 966 Chamber
Limit : FCC PART 15C 2.4G PK
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH0

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2404.13	103.86	114.00	10.14	70.13	31.50	2.23	Peak
2	4807.00	62.36	74.00	11.64	25.40	34.58	2.38	Peak
3	7326.00	61.24	74.00	12.76	21.88	36.83	2.53	Peak

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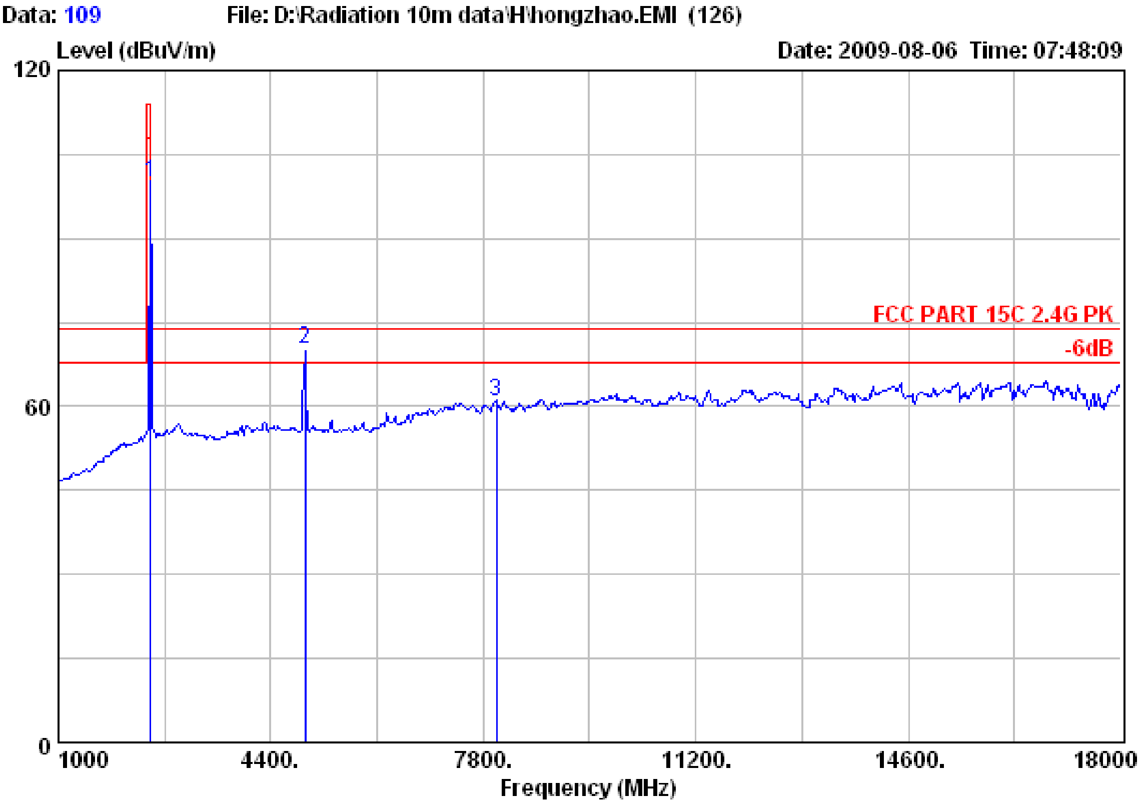
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Test Site      : 966 Chamber
Limit          : FCC PART 15C 2.4G PK
Dis. / Ant.    : 3m    3117                Ant. Pol.: HORIZONTAL
EUT            : Wireless Video Door Phone
M/N            : HZ-A1-OUTDOOR
Power          : DC 12V From adapter input  AC 120V/60Hz
Test Engineer  : Jade
Comment        : Temp.:25.2'C    Humi.:56%
Test Mode      : TX Mode CH0
```

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2404.13	97.58	114.00	16.42	63.85	31.50	2.23	Peak
2	4806.00	68.96	74.00	5.04	32.00	34.58	2.38	Peak
3	8716.00	60.15	74.00	13.85	20.55	36.98	2.62	Peak

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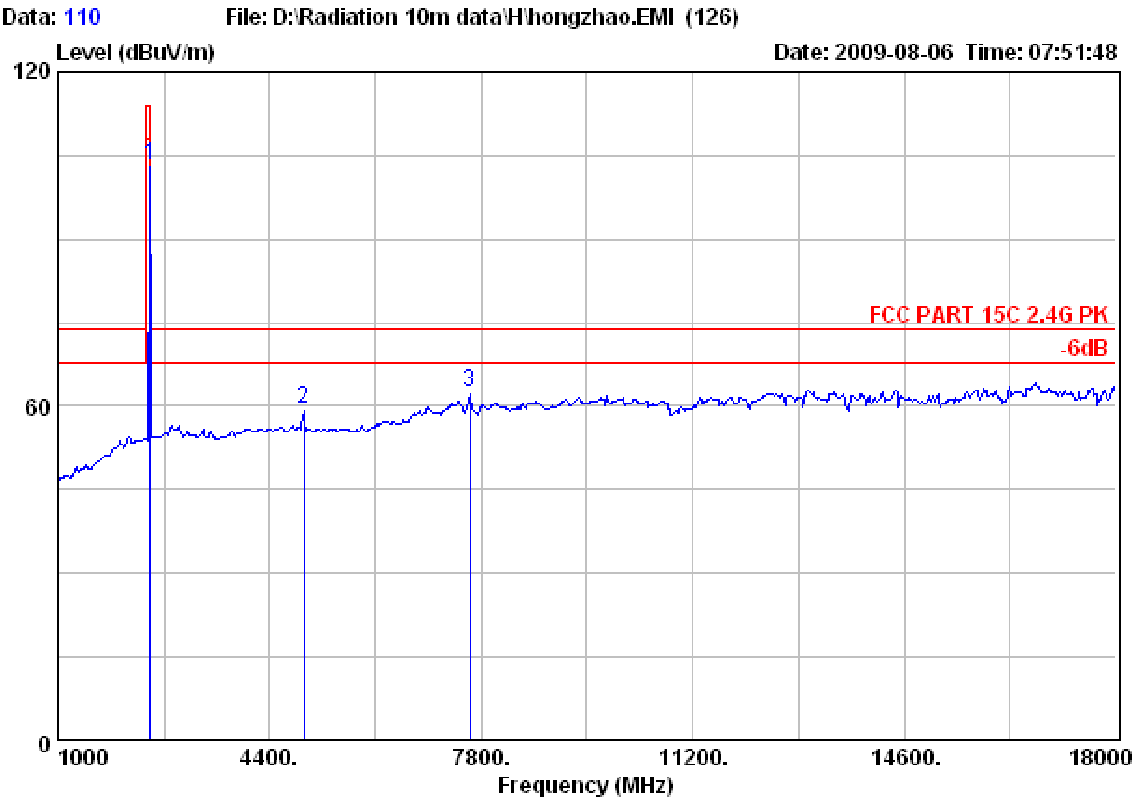


Test Site : 966 Chamber
Limit : FCC PART 15C 2.4G PK
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH63

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.38	99.94	114.00	14.06	66.13	31.58	2.23	Peak
2	4944.00	70.26	74.00	3.74	33.21	34.67	2.38	Peak
3	8004.00	60.86	74.00	13.14	21.28	37.00	2.58	Peak

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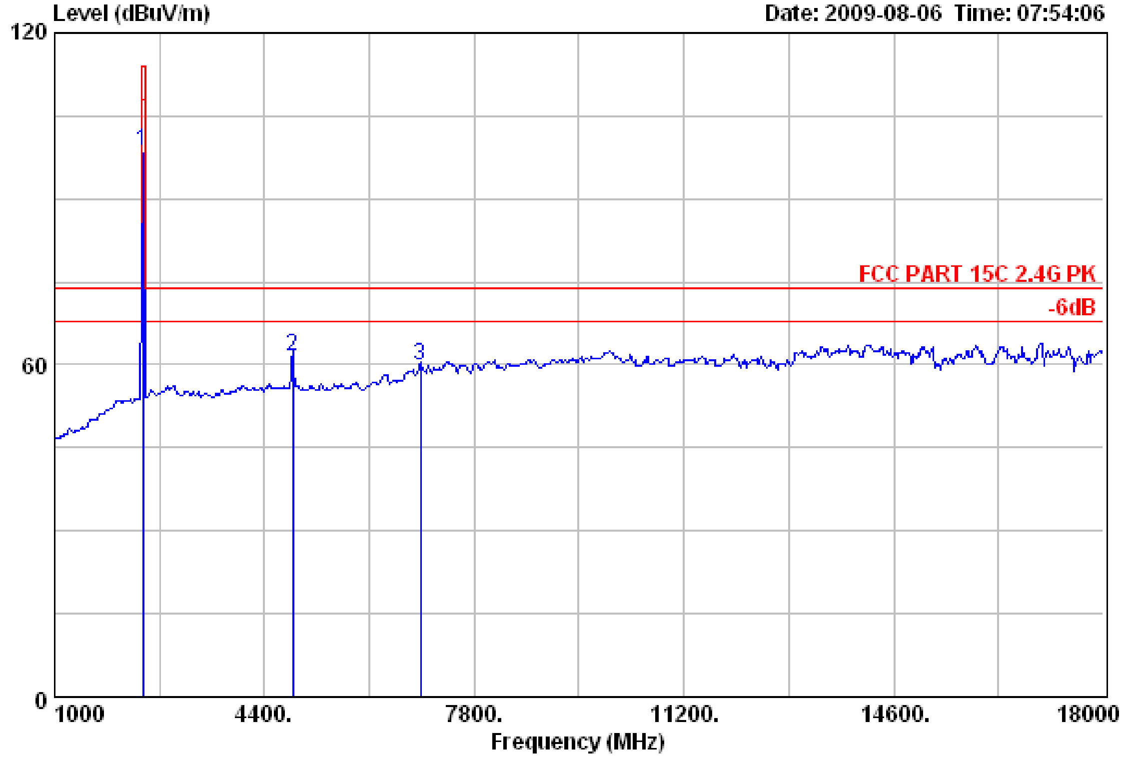
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Limit	:	FCC PART 15C 2.4G PK
Dis. / Ant.	:	3m 3117 Ant. Pol.: VERTICAL
EUT	:	Wireless Video Door Phone
M/N	:	HZ-A1-OUTDOOR
Power	:	DC 12V From adapter input AC 120V/60Hz
Test Engineer	:	Jade
Comment	:	Temp.:25.2'C Humi.:56%
Test Mode	:	TX Mode CH63

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.38	103.14	114.00	10.86	69.33	31.58	2.23	Peak
2	4944.00	59.41	74.00	14.59	22.36	34.67	2.38	Peak
3	7613.00	62.58	74.00	11.42	23.18	36.85	2.55	Peak

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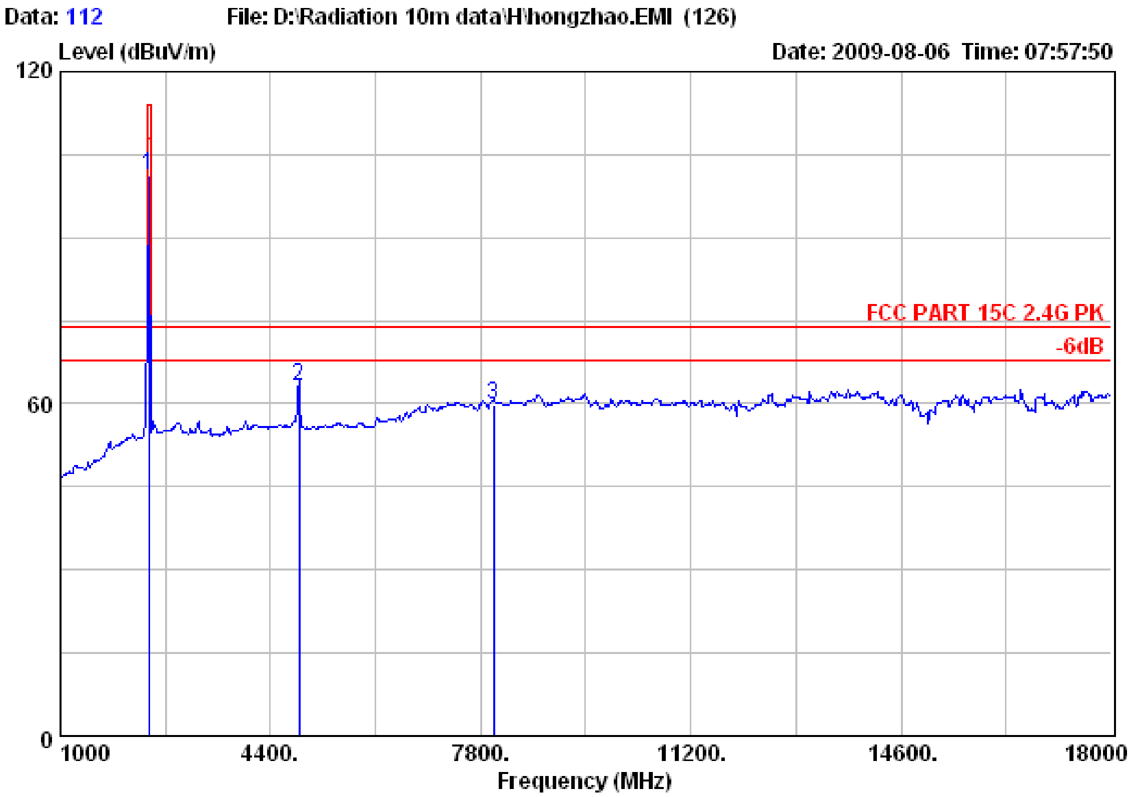



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Test Site      : 966 Chamber
Limit          : FCC PART 15C 2.4G PK
Dis. / Ant.    : 3m   3117                 Ant. Pol.: VERTICAL
EUT            : Wireless Video Door Phone
M/N            : HZ-A1-OUTDOOR
Power          : DC 12V From adapter input  AC 120V/60Hz
Test Engineer  : Jade
Comment        : Temp.:25.2'C   Humi.:56%
Test Mode      : TX Mode CH33
```

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2432.25	98.63	114.00	15.37	64.88	31.52	2.23	Peak
2	4859.00	61.34	74.00	12.66	24.35	34.61	2.38	Peak
3	6933.00	59.99	74.00	14.01	20.62	36.86	2.51	Peak

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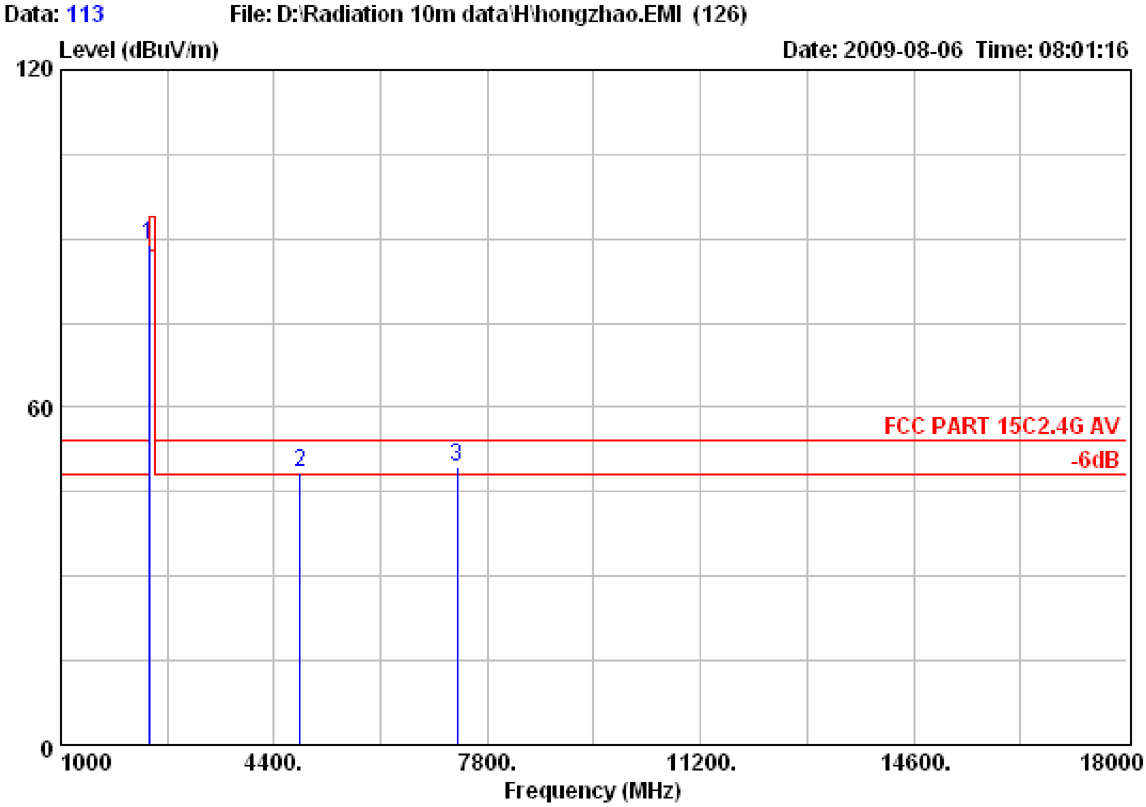


Test Site : 966 Chamber
Limit : FCC PART 15C 2.4G PK
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH33

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2432.25	101.42	114.00	12.58	67.67	31.52	2.23	Peak
2	4859.00	63.13	74.00	10.87	26.14	34.61	2.38	Peak
3	8004.00	59.83	74.00	14.17	20.25	37.00	2.58	Peak

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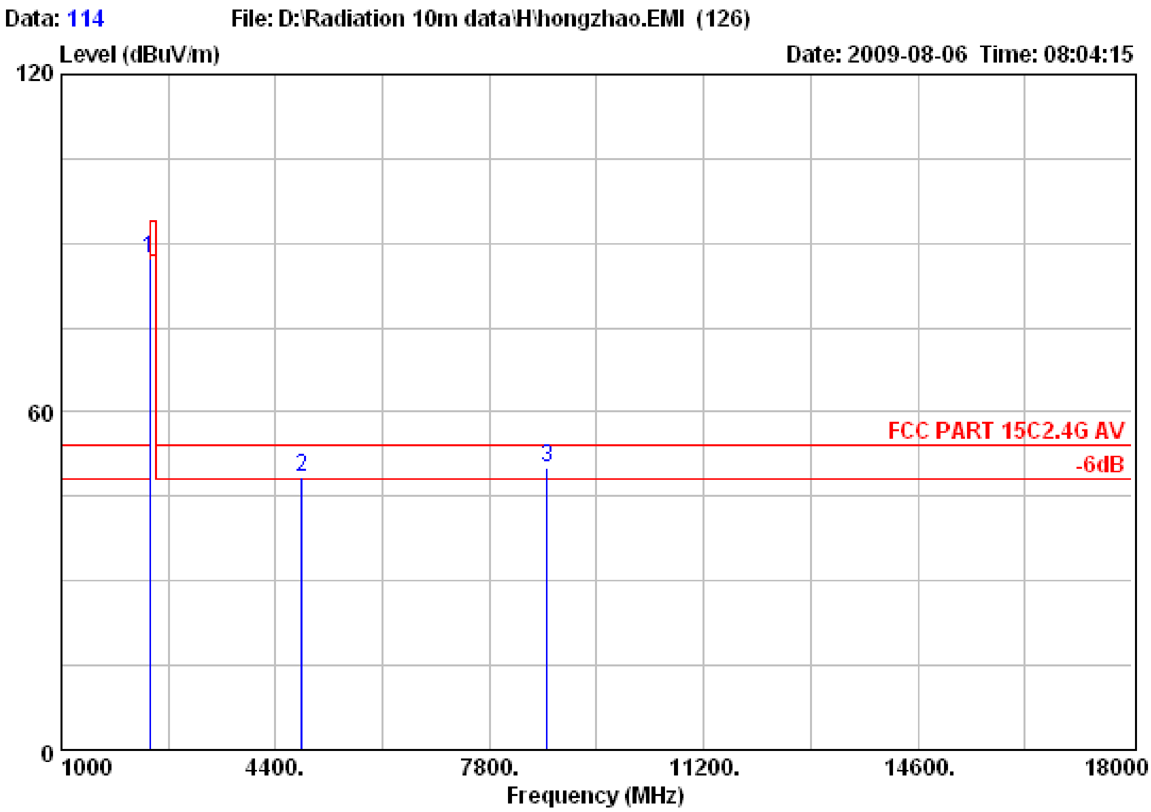



```
Test Site      : 966 Chamber
Limit          : FCC PART 15C2.4G AV
Dis. / Ant.    : 3m   3117                Ant. Pol.: VERTICAL
EUT            : Wireless Video Door Phone
M/N            : HZ-A1-OUTDOOR
Power          : DC 12V From adapter input  AC 120V/60Hz
Test Engineer  : Jade
Comment        : Temp.:25.2'C   Humi.:56%
Test Mode      : TX Mode CH0
```

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2404.13	89.03	94.00	4.97	55.30	31.50	2.23	Average
2	4808.00	48.40	54.00	5.60	11.44	34.58	2.38	Average
3	7324.00	49.63	54.00	4.37	10.27	36.83	2.53	Average

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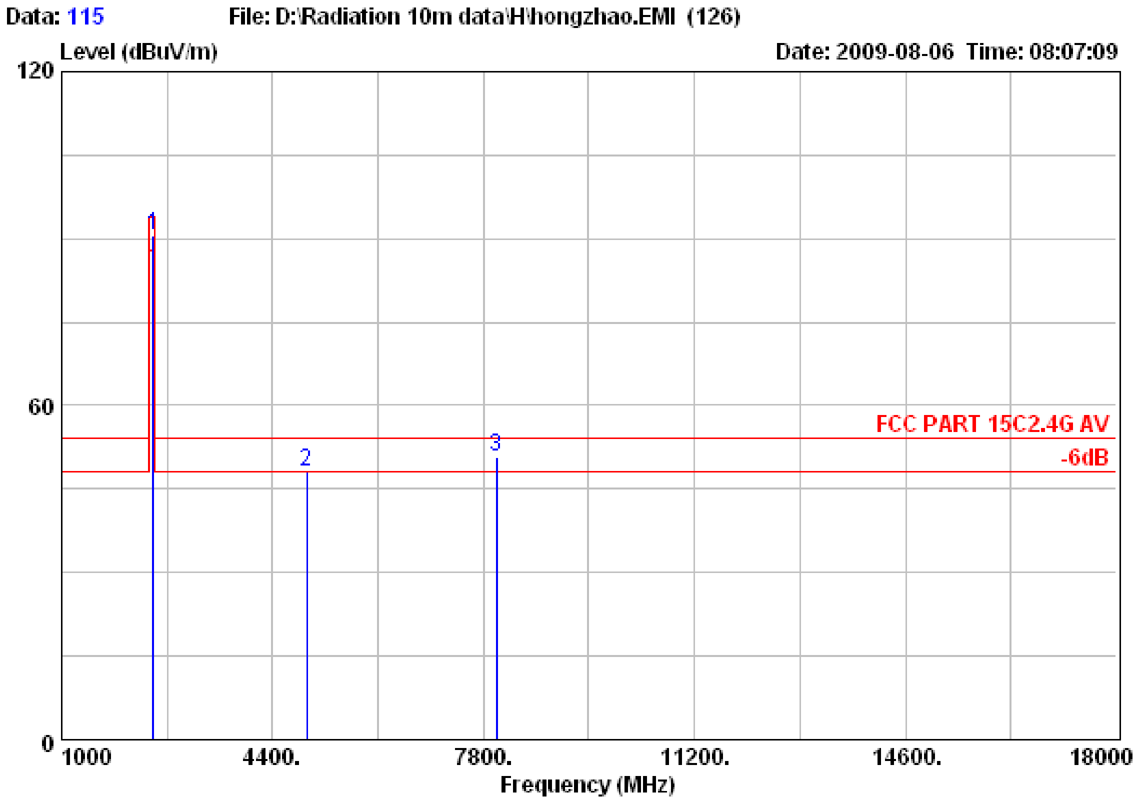


Test Site : 966 Chamber
Limit : FCC PART 15C2.4G AV
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH0

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2404.13	87.29	94.00	6.71	53.56	31.50	2.23	Average
2	4808.00	48.31	54.00	5.69	11.35	34.58	2.38	Average
3	8718.00	50.29	54.00	3.71	10.69	36.98	2.62	Average

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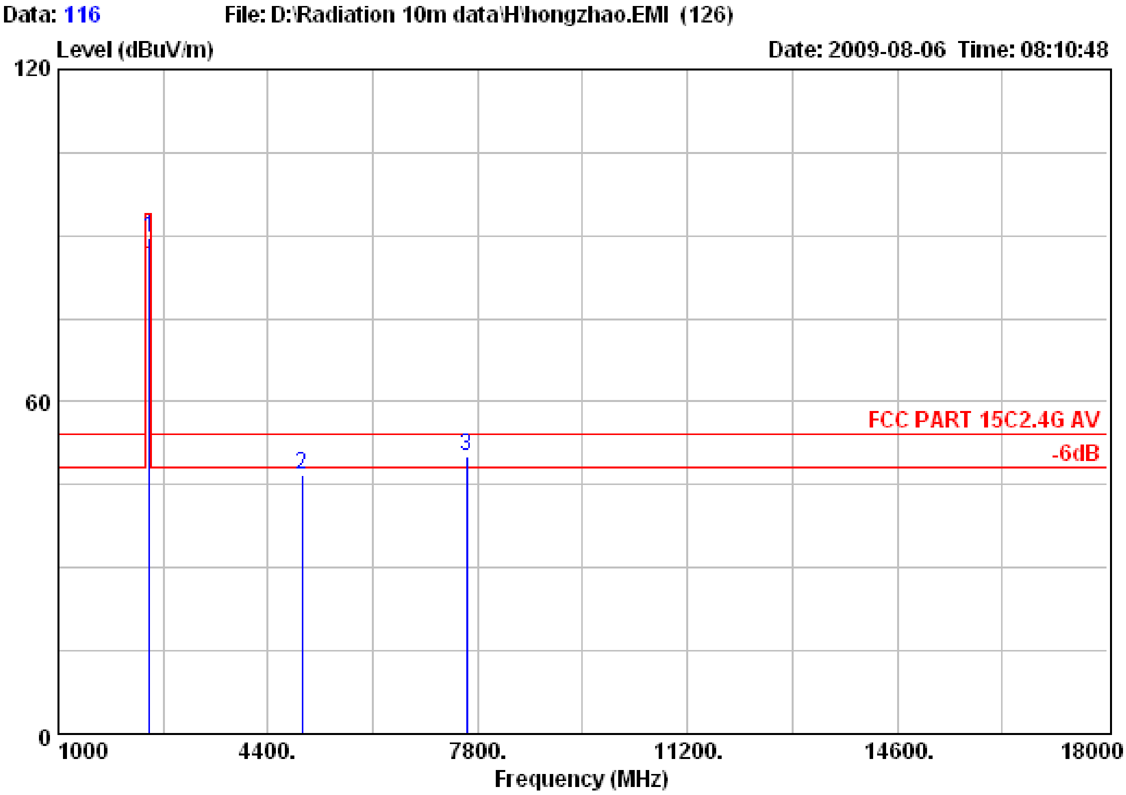


Test Site : 966 Chamber
Limit : FCC PART 15C2.4G AV
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH63

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.38	90.45	94.00	3.55	56.64	31.58	2.23	Average
2	4944.00	48.23	54.00	5.77	11.18	34.67	2.38	Average
3	8004.00	50.78	54.00	3.22	11.20	37.00	2.58	Average

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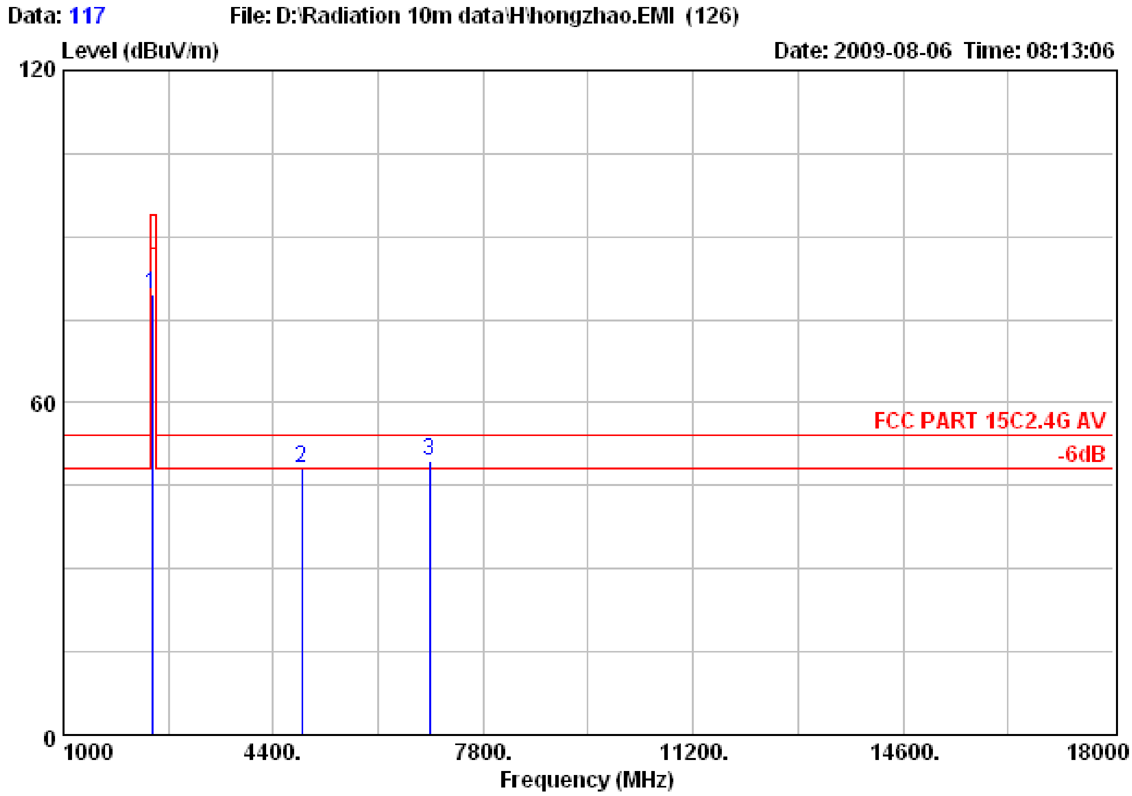


Test Site : 966 Chamber
Limit : FCC PART 15C2.4G AV
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH63

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.38	89.68	94.00	4.32	55.87	31.58	2.23	Average
2	4944.00	46.68	54.00	7.32	9.63	34.67	2.38	Average
3	7613.00	50.04	54.00	3.96	10.64	36.85	2.55	Average

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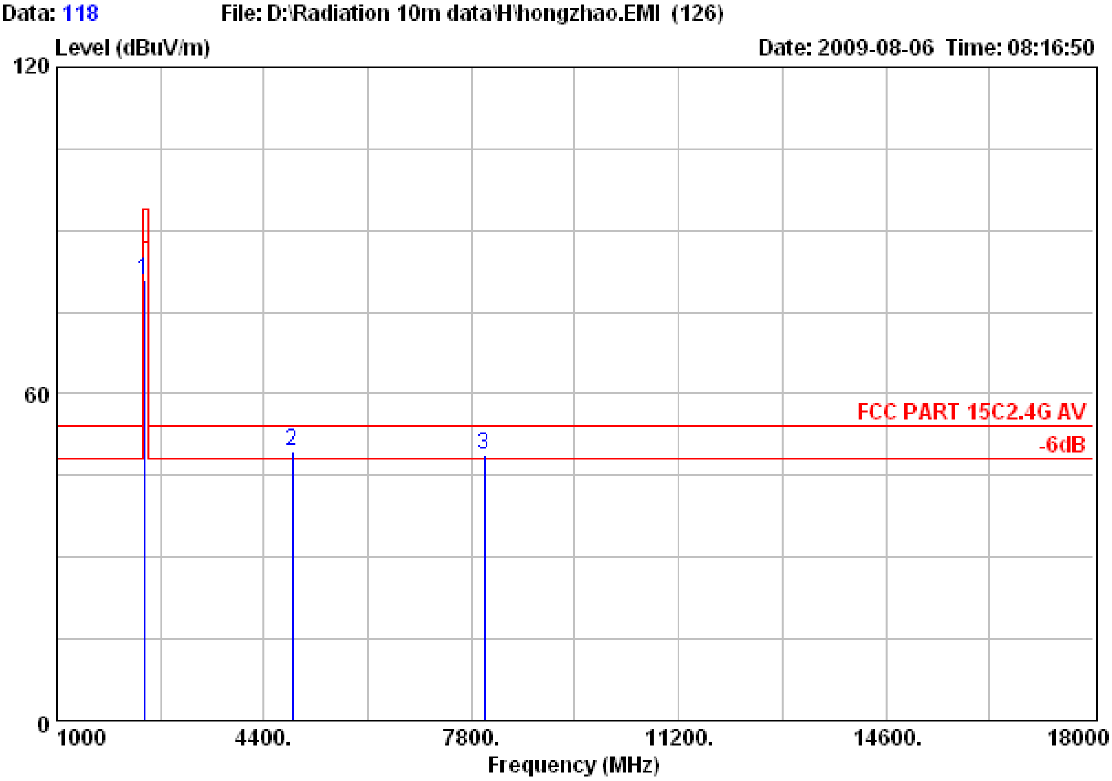


Test Site : 966 Chamber
Limit : FCC PART 15C2.4G AV
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH33

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2432.25	79.52	94.00	14.48	45.77	31.52	2.23	Average
2	4859.00	48.18	54.00	5.82	11.19	34.61	2.38	Average
3	6933.00	49.62	54.00	4.38	10.25	36.86	2.51	Average

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Test Site : 966 Chamber
Limit : FCC PART 15C2.4G AV
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH33

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2432.25	80.75	94.00	13.25	47.00	31.52	2.23	Average
2	4859.00	49.45	54.00	4.55	12.46	34.61	2.38	Average
3	8004.00	48.83	54.00	5.17	9.25	37.00	2.58	Average

4.3. 20dB Bandwidth

4.3.1. Test limits

No requirement.

4.3.2. Test procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Connect EUT RF output port to the spectrum analyzer through an RF attenuator.
3. Set the EUT work on the Low Channel, Middle Channel, High Channel individually.
4. Set SA Center Frequency = Operation frequency, RBW=1MHz,VBW=1MHz.
5. Set SA trace max hold, then view.

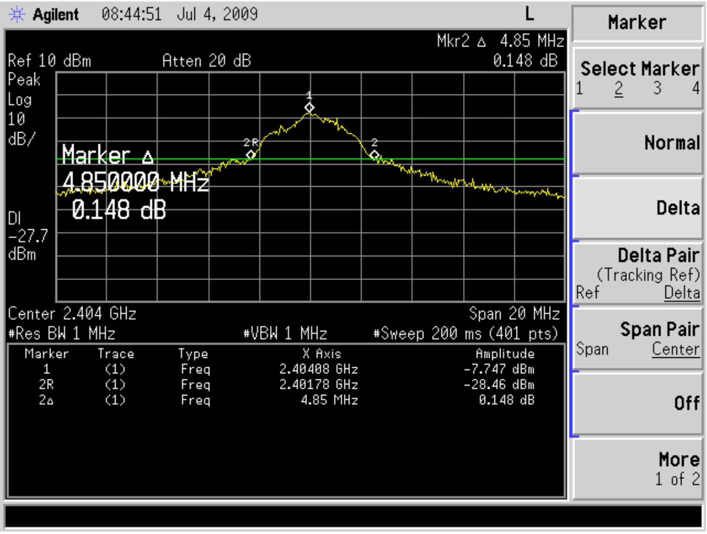
4.3.3. Test result

Pass

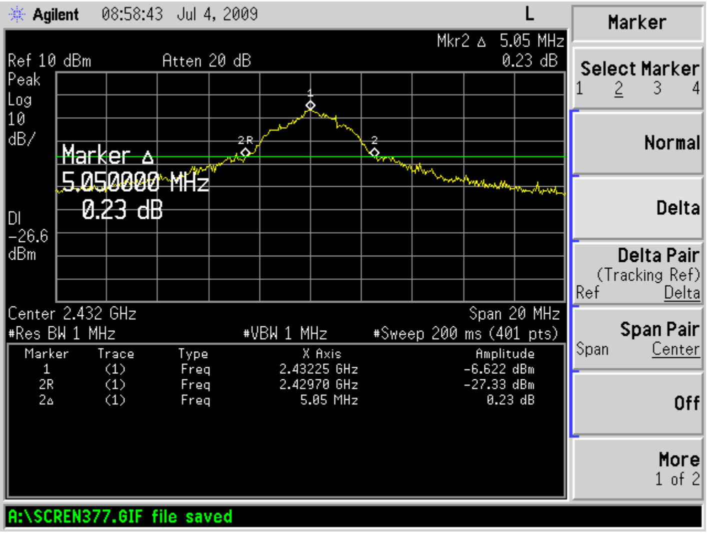
Test Channel	Frequency MHz	20dB bandwidth MHz
CH0	2404.125	4.85
CH33	2432.25	5.05
CH63	2478.375	5.20

The test plots as following:

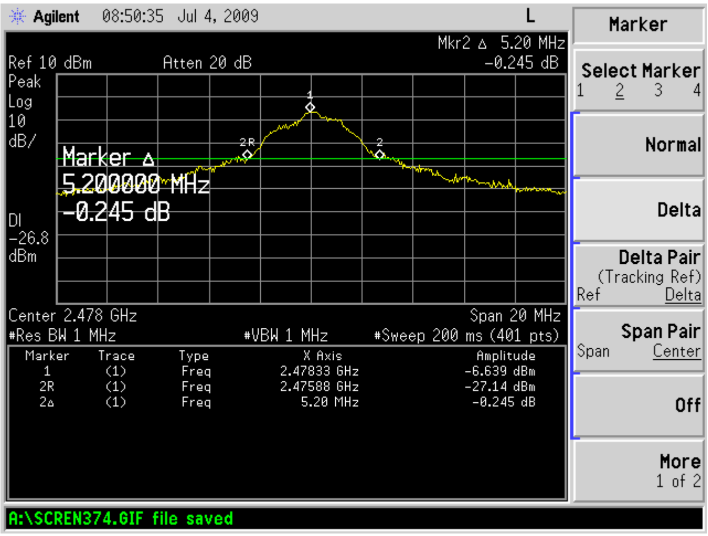
TX Mode CH0: 2404.125MHz



TX Mode CH33: 2432.25MHz



TX Mode CH63: 2478.375MHz



4.4. Band Edge

4.4.1. Test limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

4.4.2. Test procedure

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:

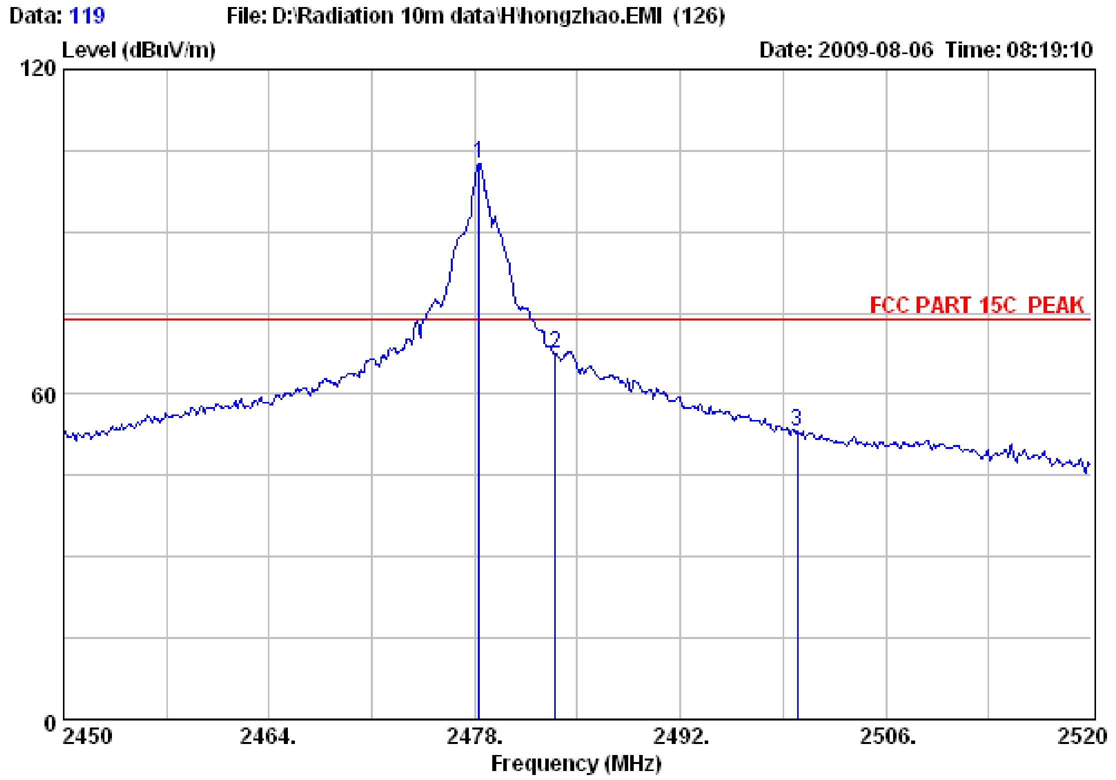
   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

4.4.3. Test result

PASS.
The test plots as following:

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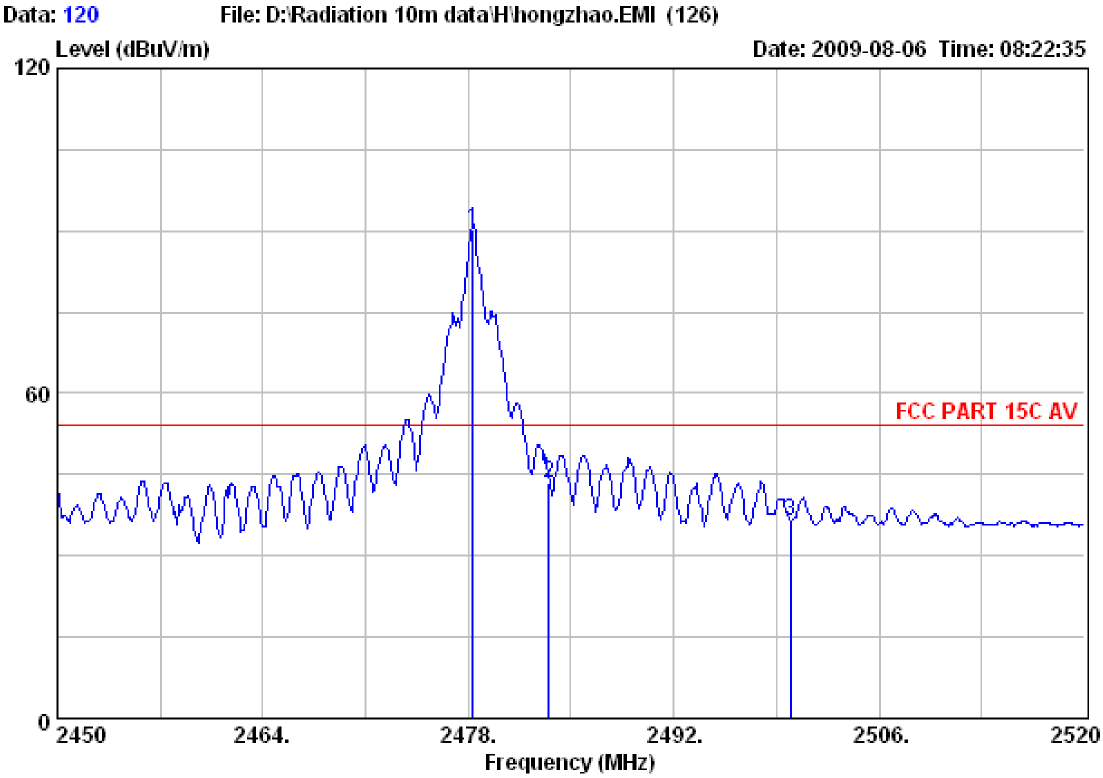


Test Site : 966 Chamber
Limit : FCC PART 15C PEAK
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH63

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.28	102.71	74.00	-28.71	68.90	31.58	2.23	Peak
2	2483.50	67.39	74.00	6.61	33.58	31.58	2.23	Peak
3	2500.00	53.24	74.00	20.76	19.41	31.60	2.23	Peak

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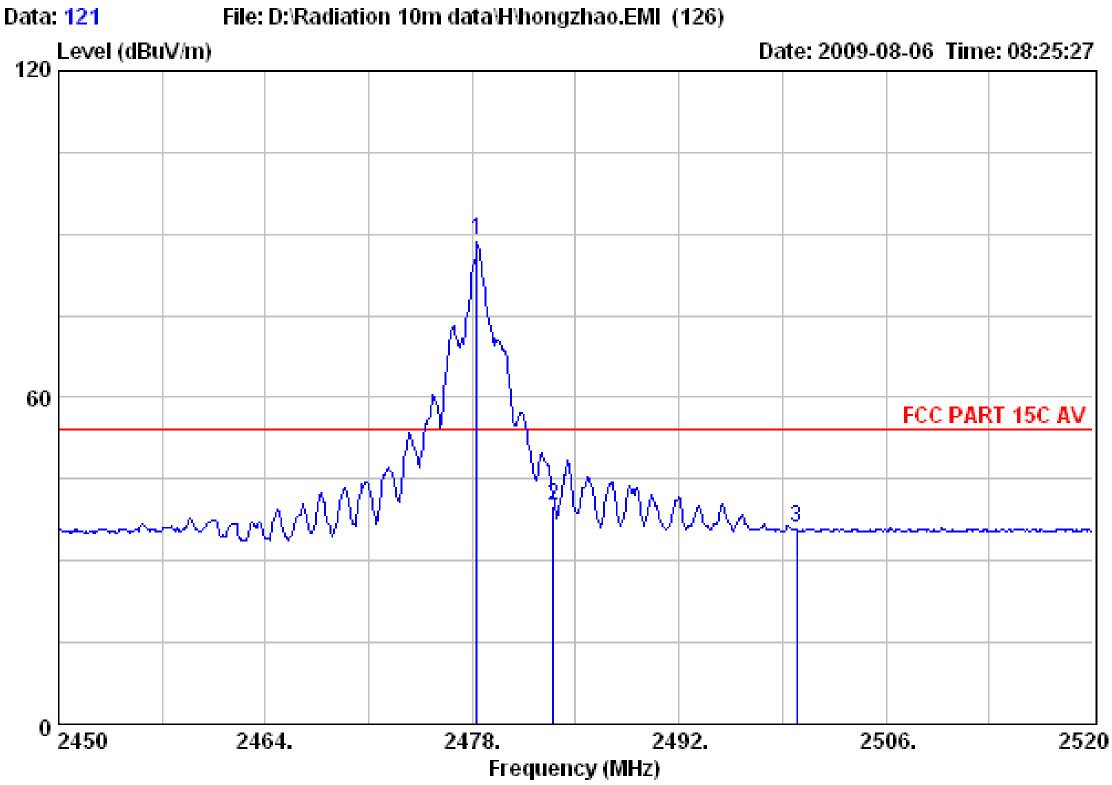


Test Site : 966 Chamber
Limit : FCC PART 15C AV
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH63

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.28	90.36	54.00	-36.36	56.55	31.58	2.23	Average
2	2483.50	43.48	54.00	10.52	9.67	31.58	2.23	Average
3	2500.00	36.46	54.00	17.54	2.63	31.60	2.23	Average

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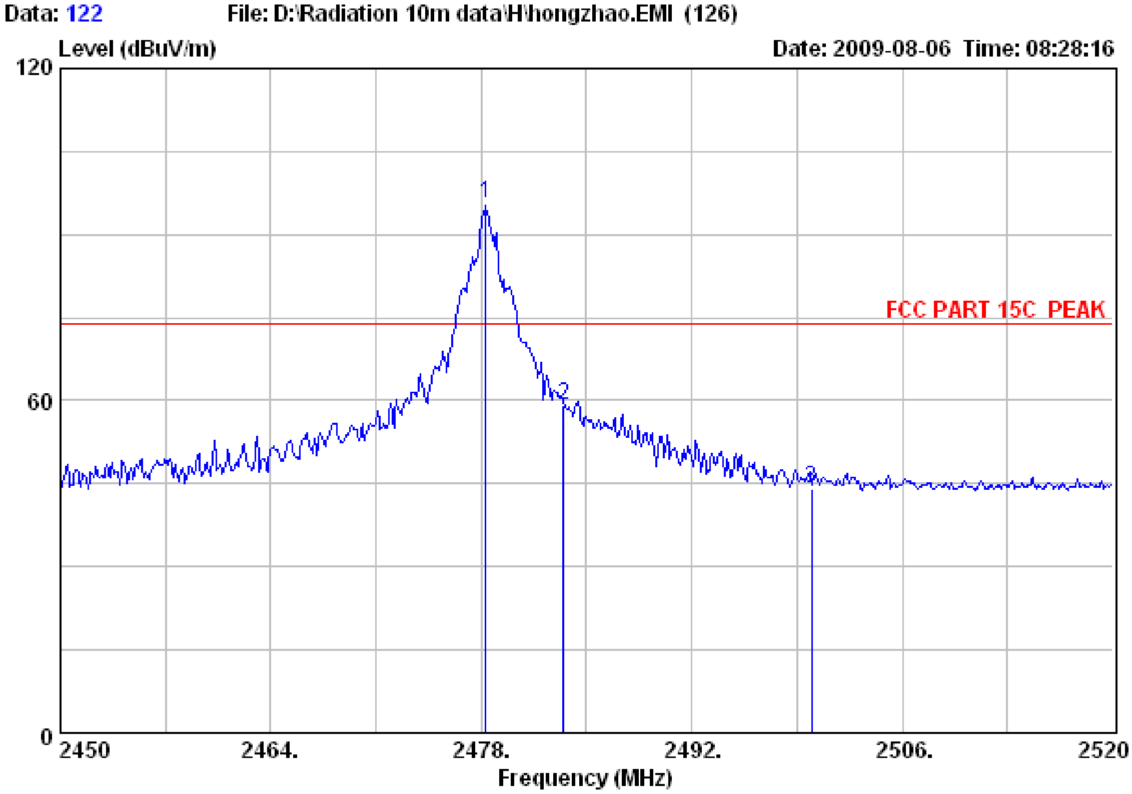


Test Site	: 966 Chamber		
Limit	: FCC PART 15C AV		
Dis. / Ant.	: 3m 3117	Ant. Pol.:	HORIZONTAL
EUT	: Wireless Video Door Phone		
M/N	: HZ-A1-OUTDOOR		
Power	: DC 12V From adapter input AC 120V/60Hz		
Test Engineer	: Jade		
Comment	: Temp.:25.2'C Humi.:56%		
Test Mode	: TX Mode CH63		

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.28	89.07	54.00	-35.07	55.26	31.58	2.23	Average
2	2483.50	40.07	54.00	13.93	6.26	31.58	2.23	Average
3	2500.00	36.19	54.00	17.81	2.36	31.60	2.23	Average

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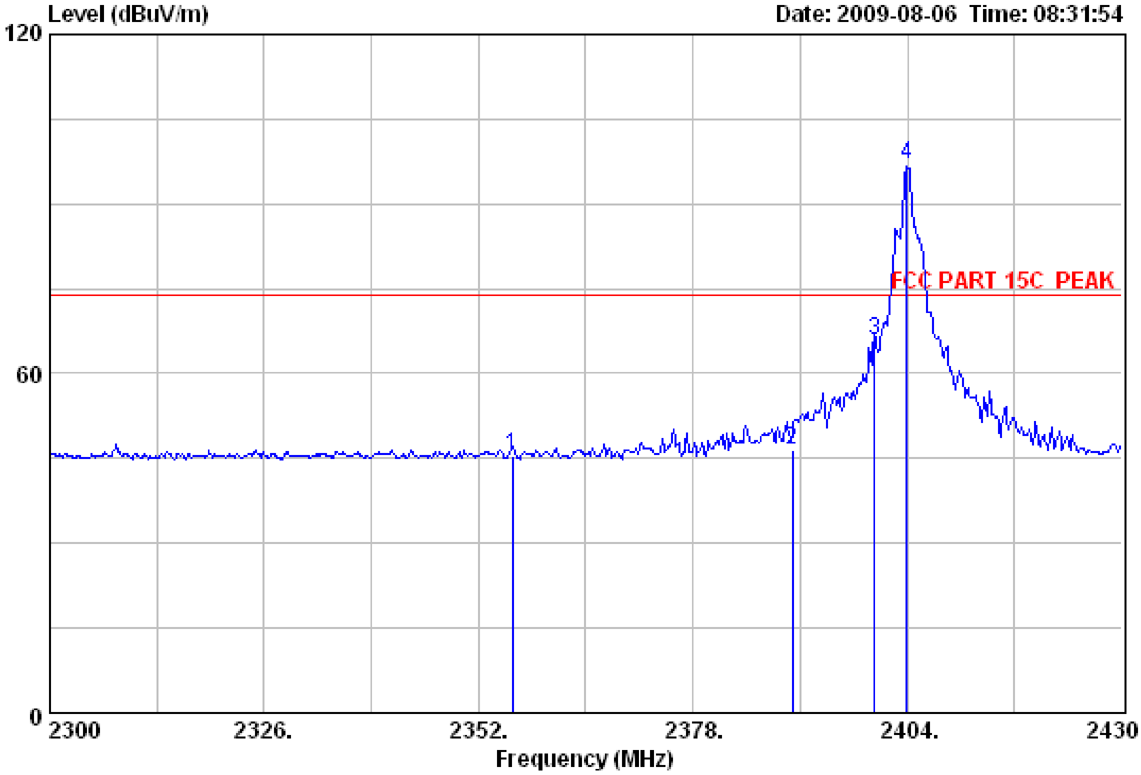

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Test Site      : 966 Chamber
Limit          : FCC PART 15C  PEAK
Dis. / Ant.    : 3m   3117               Ant. Pol.: HORIZONTAL
EUT            : Wireless Video Door Phone
M/N            : HZ-A1-OUTDOOR
Power          : DC 12V From adapter input  AC 120V/60Hz
Test Engineer  : Jade
Comment        : Temp.:25.2'C   Humi.:56%
Test Mode      : TX Mode  CH63
```

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2478.28	95.67	74.00	-21.67	61.86	31.58	2.23	Peak
2	2483.50	59.15	74.00	14.85	25.34	31.58	2.23	Peak
3	2500.00	44.07	74.00	29.93	10.24	31.60	2.23	Peak

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Data: 123 File: D:\Radiation 10m data\H\hongzhao.EMI (126)



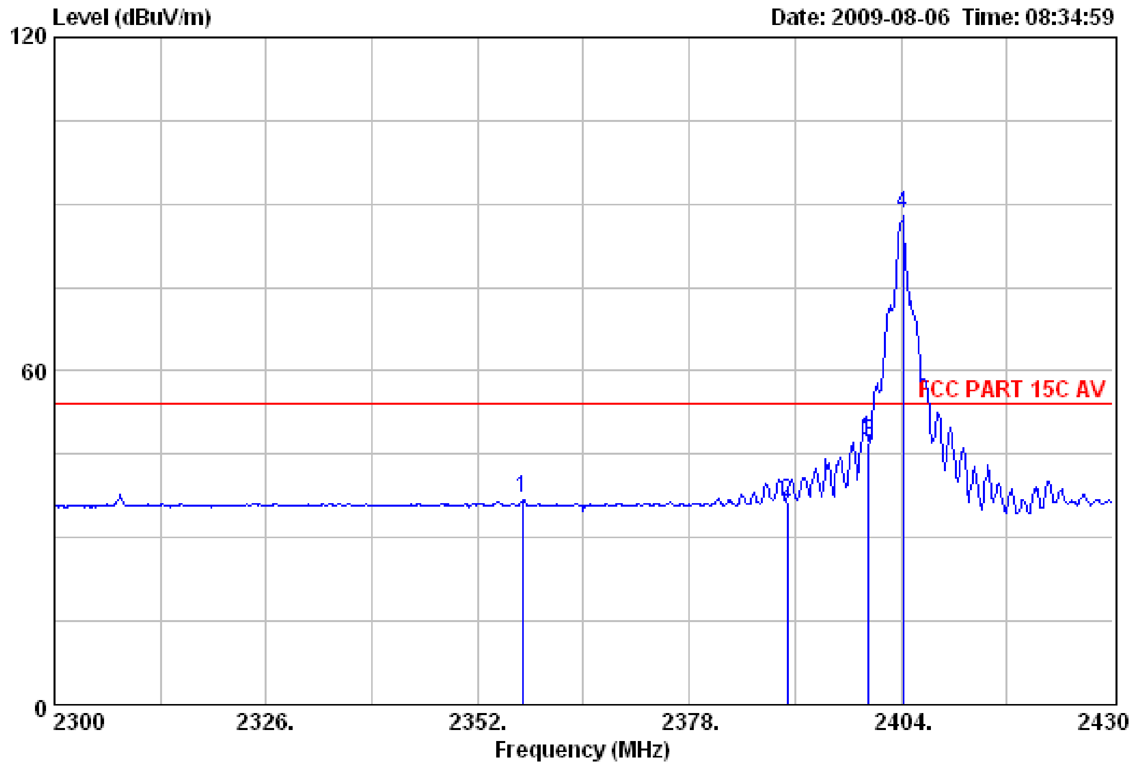
Test Site : 966 Chamber
Limit : FCC PART 15C PEAK
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH0

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2356.16	45.30	74.00	28.70	11.63	31.45	2.22	Peak
2	2390.00	46.57	74.00	27.43	12.87	31.48	2.22	Peak
3	2400.00	65.99	74.00	8.01	32.26	31.50	2.23	Peak
4	2403.87	96.85	74.00	-22.85	63.12	31.50	2.23	Peak

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Data: 124 File: D:\Radiation 10m data\H\hongzhao.EMI (126)

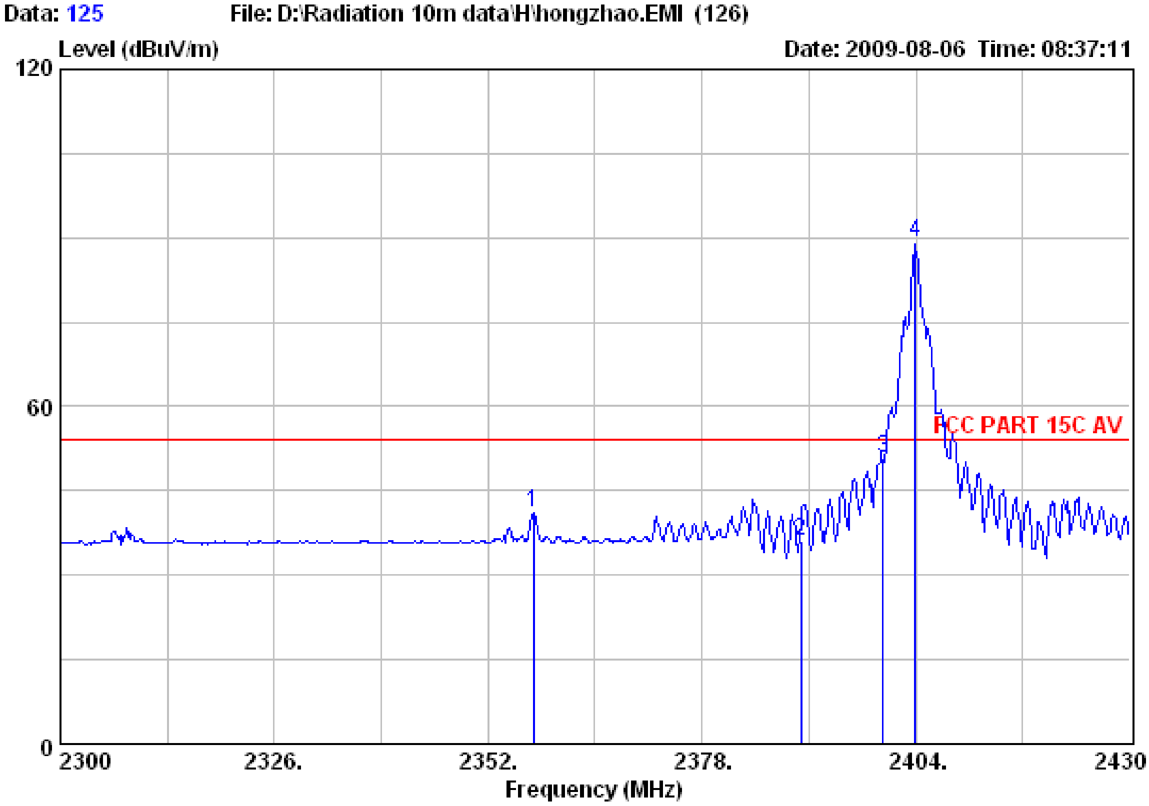


Test Site : 966 Chamber
Limit : FCC PART 15C AV
Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH0

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2357.46	36.99	54.00	17.01	3.32	31.45	2.22	Average
2	2390.00	36.30	54.00	17.70	2.60	31.48	2.22	Average
3	2400.00	47.05	54.00	6.95	13.32	31.50	2.23	Average
4	2404.26	88.16	54.00	-34.16	54.43	31.50	2.23	Average

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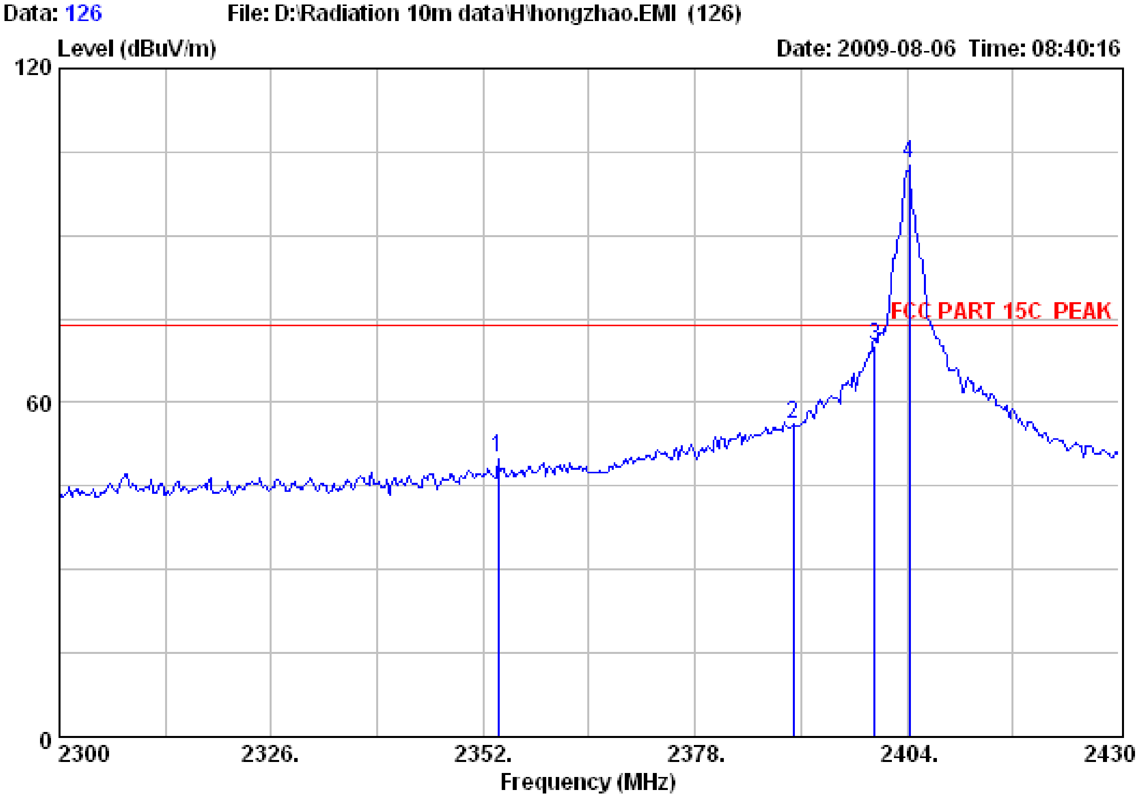


Test Site : 966 Chamber
Limit : FCC PART 15C AV
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH0

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2357.46	41.16	54.00	12.84	7.49	31.45	2.22	Average
2	2390.00	35.95	54.00	18.05	2.25	31.48	2.22	Average
3	2400.00	50.97	54.00	3.03	17.24	31.50	2.23	Average
4	2403.87	89.15	54.00	-35.15	55.42	31.50	2.23	Average

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Test Site : 966 Chamber
Limit : FCC PART 15C PEAK
Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL
EUT : Wireless Video Door Phone
M/N : HZ-A1-OUTDOOR
Power : DC 12V From adapter input AC 120V/60Hz
Test Engineer : Jade
Comment : Temp.:25.2'C Humi.:56%
Test Mode : TX Mode CH0

	Freq. (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
1	2353.82	50.02	74.00	23.98	16.35	31.45	2.22	Peak
2	2390.00	56.26	74.00	17.74	22.56	31.48	2.22	Peak
3	2400.00	70.26	74.00	3.74	36.53	31.50	2.23	Peak
4	2404.26	102.84	74.00	-28.84	69.11	31.50	2.23	Peak